

# PSYCHOLOGICAL ASPECTS OF AIR TRANSPORT

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The thesis deals with the psychological aspects of aviation. Its aim was to design and identify measures and options for the regeneration of human forces at work and after work activities of employees of airports and measures to overcome the negative aspects of air passengers and the public. The theoretical part focuses on the conceptual interpretation of psychological aspects of transport as related to both passengers and staff at the airport. The issue of increasing human performance is often discussed in executive positions. The practical part analyzes and presents the results of the questionnaire research proposals and suggestions of improvements that should lead to increased human performance, and measures to regenerate human forces working for and working.

**K e y w o r d s:** human performance, work activity, regeneration of human forces, restrictions on work activities, air transport

## 1 INTRODUCTION

Air travel is a technology leader in transportation and has become irreplaceable in the development of global economy, especially for rapid transportation of goods and mass tourism. Emergencies, such as aviation incident or accident is very sensitive to perceived, because even a single air disaster usually represents a significant material, but above all, human losses are currently very rewarding topic for the media. Air transport is a major impact on the psychological aspects of the law. To be an effective mode of transport and especially safe, it is necessary to address the issue of human performance, as well as propose measures to improve the performance of airport employees, as well as the recovery in the labor employment, and last but not least, be given to measures to overcome the negative psychological aspects of air passengers and the public.

## 2 IMPACT ASSESSEMENT OF THE NEED FOR HUMAN PERFORMANCE

Human performance is characterized as the performance of meaningful activities for a given level over time. Human performance is the value function of the human body, characterized by the quality of work over time. Performance depends on individual psychological and physiological resources that are characterized by levels in the range of competence. In relation to specified human task performance is evaluated as the maximum, optimum, or reduced. The rating is based on a comparison of performance indicators, activities and psychological functions. Physiology found that performance is variable and is associated with changes in the nature of physiological and mental functions in the body. High-employment in any activity is provided only if the employment rate is consistent with its own frequency to daily rhythms of physiological functions. Human performance during the work shift is characterized by the development phase. The main stage of the application are as follows:

The process of adaptation, or increase performance, a reorganization of the physiological functions of human activity prior to production. Depending on the nature of work and individual characteristics of this phase lasts from several minutes to 1,5 hours.

Sustained high efficiency, characterized in that the body is determined by the relative stability or even slight decrease in the intensity of physiological functions. This conditions combined labor-intensive and rate parameters (increasing production, reducing the time to practice, reducing equipment downtime, faulty operation). Depending on the severity of the work phase of continuous power can be maintained at 2 to 2.5 hours or more.

Development of a fatigue-related decline in performance, which lasts from several minutes up to 1 to 1,5 hours, and is characterized by a deterioration in working order to fulfill his responsibilities. The dynamics of health for the change is graphically represented by a curve, increasing in the early morning to afternoon, about a high level and reducing the evening. Described phase power can be repeated after the break. Phase adjustment process is faster a more stable than the levels of efficiency but lower and longer than it was before lunch. The dynamics of human performance during the day, week, which is characterized by having the same pattern as for performance during the shift. At different times of day when the human body responds to physical and mental tension. According to the daily cycle, the highest level of performance is given in the morning and afternoon, 8 to 12 hours of the morning and 14 to 16 hours. In the evening, the scope of performance gradually decreases and reaches a minimum at night. During the week of human performance is not stable, and is subject to certain changes. In the early days of the working week performance gradually increases as a result of gradual entry into employment. On the third day, the highest level is achieved, which then gradually reduces and output is declining till the last day of the week.

## 3 PROBLEMS OF HUMAN PERFORMANCE, LIMITATIONS AND PSYCHOLOGICAL ASPECTS OF WORKING IN THE AVIATION

Human behavior and performance are the most (about  $\frac{3}{4}$ ) cited causes of accidents and incidents. The significant improvement in this situation should be much better to understand the whole issue of aviation and to promote a significant increase in application of acquired knowledge into practice. The principal impetus for the strong focus on the whole area of aviation that emerged

from international aviation community has recognized the opportunity to make civil aviation through comprehensive knowledge of scientific disciplines such as safer and more efficient. Since then, the man began in the distant past using a variety of tools, applications and elementary ergonomics mean a significant improvement of the efficiency of its work. But real revolution in the field of ergonomics started up in the last few centuries.

### 3.1 Definition of air unit

The concept of human factor had to be clearly defined anymore because if it is used in formally, is often confused with another man a relevant factor. The human element is the most flexible, most adaptable and most valuable part of the aviation system, but at the same time also most vulnerable to influences that may adversely affect its performance. Over the years, showed that about three out of four air accidents were the cause of their in other than optimum human performance. These reasons were classified in the past mostly by "pilot error". The term "pilot error" but does not help to prevent accidents, but acts rather counterproductive, since it only refers to the when system error has occurred, not why there has become. Caused by human error in a complex system could be caused by poor design, in adequate training stimulated, poorly designed operational procedures, an imperfect concept potentially in appropriate treatment of SOP.

### 3.2 System efficiency

The best way to illustrate the impact of the lack of adequate knowledge of the implementation of air unit on air traffic safety is to look at many of the investigation of air accidents and disasters in which human failure played a crucial role. The need for the application of human performance is limited only by the flight safety. How to use it, possibly a lack of knowledge, but is also radically affected the performance and motivation. For example, neglect the whole air in air traffic can cause less than optimal performance of air crew to perform tasks associated with managing the flight. The three most important factors influencing the health of the crew include fatigue, body rhythms and distraction or lack of sleep. The other factor affecting the physical or mental health is particularly felt by temperature, humidity, noise, vibration, light, design work and seating comfort.

### 3.3 Control and limitation of human errors

To reduce the occurrence of human errors is necessary first to understand their nature. The nature of human errors associated the following basic concepts: the origin of human errors can be fundamentally different, and the consequences of making the same mistakes can be significantly different. While some errors are caused by negligence, carelessness or lack of judgment, others may be caused by improperly designed equipment, or may

result from normal human reactions to a particular situation. The latter type of error is likely to recur, and their discovery could be foreseeable.

### 3.4 Training and education

Education and training are two different aspects of the educational process. Education encompasses a wide range of knowledge, values, attitudes and skills required as a basis which you can later build a more specific job skills. The training process is held in order to learn specific skills, knowledge and attitudes for a job or a job. Proper and effective training can not take place if it has not been preceded by adequate training in the required skills, knowledge or attitudes.

There are two types of training means:

- first, they are training equipment (e.g. films, videos, board) to help present the subject teacher training
- second, it is training devices (such as flight simulator, that provide active participation and training of trainees.

### 3.5 Flight documentation

Deficiencies in flight documentation have a two fold effect: the first is financial, due to an increase over time for solving problems or inability to fulfill certain tasks, the second influence is the security. In connection with the flight documentation required by the optimization the following key aspects:

- written language, including not only words and grammar, but also uses,
- typography, including font and printing, and its appearance (it has a significant impact on full understanding of printed materials),
- use of pictures, charts, diagrams or tables to place verbal description is useful in understanding the problems and maintaining attention, use of colors in images reduces the demands on the resolution and have an incentive effect,
- the work environment must be taken into account, i.e. which documents should be used in determining the dimensions such in press (too small map airport may cause problems when scrolling in an unfamiliar airport).

## 4 PROPOSAL OF MEASURES TO INCREASE HUMAN PERFORMANCE

Health-oriented human resources management and enhance human performance, is to further the development of innovative companies that develop useful strategies in occupational safety and occupational health. This focus on working conditions in improving human performance will have to significantly change the near future. In the case of focusing on employee work related primarily to increase human performance there is

also the subject of health, which is poorly treated by law as well as inside directives, plans. Reasonable strategy for health promotion and the prevention of employees may provide airport personnel managers. Rather, individual exercises, proper nutrition, as well as activities for the company in accordance with the requirements of health and safety. So in summary, it is corporate health care and comprehensive approach to prevention and health promotion, which also affect human performance and working conditions. Corporate strategies should motivate employees to their custody in society, which increases flexibility and creativity of employees, and thus addresses the causes of chronic diseases and facilitate reintegration. Again, it shows the need for companies in specific exercise program to achieve these specific objectives such as human performance for active lifestyle of the current airport workers. Improving human performance in the workplace, which should be mandatory for each manager, human resources offices as well directors and consultants. Where analysis of human performance gives us the analytical tools for evaluating differences between average and excellent interpretations of the creation of intervention measures.

## 5 ANALYSIS OF OPTIONAL MEASURES TO ELIMINATE AND OVERCOME OCCUPATIONAL LIMITATIONS FROM PSYCHOLOGICAL ASPECTS

The following sections are dedicated to the psychological aspect of the workplace, or the relationship in the workplace, as well aspects that affect employment.

### 5.1 Psychological aspects of employment

The psychological aspects of work are primarily concerned with employee relations. The first one lists employee relations working group, but the same position. In another case, the relations between employees of different positions. Especially when considering the status of women in the workplace. Nowadays, of course, plays an important role in women age, physical attraction and mutual sympathy.

#### Organization climate and culture

The basic types of organizational change are:

- focus on power (strictly authoritarian management style - army)
- focus on the interaction (slightly informal style of management - research department)
- focus on performance (participation and the relative autonomy of employees - shop).

#### Working career

Planning process and development staff is here associated with the growth in wages and prestige. In doing so, we must distinguish between the subjective and objective phase. The subjective phase is valued employee

of the professional success of himself, and objective phase is valued as an employee observation of assessors, or control personal documentation.

#### Organizational conditions of personnel management

The basic conditions for effective personnel management is the integration of individual and group organization. The set of activities associated with roles, where people carry out their role, and sanctions that are applied in organizations depending on whether the individual is subordinate expectations that are placed him in the organization, or a required role in the organization. The maximum degree of correlation is when the greater consistency between the objectives of the organization and employees, the greater the loyalty the organization.

#### Work motivation

The motivation is to create and maintain such an environment in which individuals work together towards common goals (including effort, perseverance and objectives), there are internal sources of motivation (job satisfaction, recognition, trust, participation in decision-making), external sources of motivation (salary, bonus, bonuses, profit sharing), which serves as a means to achieving certain goals. If these funds are offered, these are all means of encouraging and motivating the motivator (money, promotion) initiative is a motivating incentive, business incentive, which offers a certain value.

Motivational power (achievement motivation).

People are divided into:

- a person motivated by success (requires a difficult task, avoiding easy task, trying to avoid risk),
- a person motivated by fear of failure.

#### Conflict resolution and forms of solutions

Conflict is meeting conflicting interests, attitudes, roles, behaviors among individuals and groups:

- destructive (enmity between entities),
- constructive.

## 6 ANALYSIS AND DESIGN OF MEASURES FOR THE POSSIBILITY OF REGENERATION OF HUMAN EFFORT IN SERVICE OF THE WORKING OF A AIRPORT STAFF

The human body is a system of biological systems that perform specific tasks in terms of effective action. The second function of individual systems, good regulation at various levels, are the guarantee of life as a whole. The organism is healthy when its individual well systems carry out their sub-tasks and they are different systems in terms of well-managed system itself and in terms of the organism as a whole. How are these different systems (functions) disturbed by external or internal

factors, and when disturbed the management or control, then there is a breach of the functions of the system and dysfunction of the body as a whole, and health status changes in the disease.

### 6.1 Characteristics of regeneration

Regeneration is a biological process that fully restores fast and transient decreases in physical and mental capacities of the organism. Under the recovery forces we mean the sum of the measures applied in healthy subjects in order to speed up the recuperation processes in the body, relieves fatigue and prevent congestion, revisions, or other damage to health that may arise in relation to the intensity of work.

### 6.2 Means of regeneration

Generally speaking, the regeneration of airport staff has pedagogical and medico-biological aspects. Teaching focuses on the creation of effective ways especially during regeneration means motion, while the biological targets namely to maintain good health, growth and fitness. It is done this by developing adaptive capacity of the body and increase body resistance movement against both the loads and also to the action of various external influences. This also includes the elimination of fatigue, recovery constant internal environment, which means the speed and efficiency of regeneration staff. Between the theory of biology and regeneration of workers there are no clearly defined boundaries. Often very closely related to each other or pass smoothly.

## 7 ANALYSIS OF THE EFFECTS OF AIR TRAFFIC ON PSYCHOLOGICAL ASPECTS OF AIR PASSENGERS AND PUBLIC AND THE PROPOSED MEASURES TO OVERCOME THE NEGATIVE PSYCHOLOGICAL ASPECTS AIR TRANSPORT AND PUBLIC

Nevertheless, it is considered air travel the safest mode of transport, a significant proportion of the population in varying degrees, feeling the fear of flying. In Slovakia, this issue is of relatively little interest, perhaps because air transport in our country is not yet as widely used as in abroad. There have been many studies conducted and published many scientific articles. Regarding aviofobie there is relatively small amount of information available, which in turn is related to a significant distortion of the meaning of the term. It is often used as a synonym for the entire continuum of anxiety and fear responses in relation with flying, including common or mild fear or anxiety weak. Aviofobia is thus characterized by excessive and long-term concern is occurring, which are bound to experience the idea of flight or the flight (aircraft, airports, buying airline tickets and other stimuli associated with it). Affected due to exposure to these situations or stimuli

with him almost always causes anxiety reactions and avoidance behavior. This means that the individual avoids feared situations or pass them with a feeling of intense anxiety, fear and excitement. If they are not in these situations or are not afraid of them in advance, they do not suffer from the symptoms of anxiety. If we pay, the fear of flying, one should bear in mind that this is a whole emotional continuum. This means that the intensity of fear varies: it can occur from mild, natural concerns over fear of varying intensity to the state of terror and panic. A certain degree of fear of flying is reasonable and understandable. The man is a natural fly speed of eight hundred kilometers per hour of ten kilometers. Fear is a necessity in terms of self-preservation, which is for example, and for experienced pilots a remedy, without which their behavior could lead to gambling and then to accidents.

## 8 INTERPRETATION AND PRESENTATION OF THE RESULTS OF RESEARCH

This last chapter deals with the research that I conducted through a questionnaire. The questionnaire focused on measures to enhance human performance, where respondents selected questions from elected rather ambiguous answer type, they impede the work of most changes, processing paper records and most were proud of the resulting conflict positively solved. The second part of the questionnaire was about the possibility of regeneration of human forces at work and after work activities of employees of airports, where the respondents again chose rather ambiguous answer as to the regeneration of the respondents prevalent passive regeneration. The last part of the questionnaire were measures to overcome the negative psychological aspects of the passengers and the public. The questions assigned with ratings were answered by the respondents generally in favor of services and airport staff. The majority of respondents flew for the first time and had a fear of flying. Therefore, I conclude that the staff is properly trained for such situations.

## 9 CONCLUSION

Increasing the human performance by senior management today is employed perhaps worldwide. The aim is unfortunately to "squeeze" the employees as much as possible in terms of staff costs and that the best available 24 hours a day, rested and refreshed ready to work and perform to 100%.

Regeneration of human forces before and after work activities was covered by a wide range of professionals and researchers have suggested the best possible measures to overcome the negative psychological aspects of the employees as well as passengers and the general public. In the first part of this work I have discussed measures to enhance human performance by

various incentive programs, training courses, different rewards, and various benefits. There are many ways for which are decided by personnel management considered already as an internal mission. In the next part, I have raised the issue of psychological aspects in the air, their negative and positive aspect as seen by the travelling public. In this section, I tried to outline the concept of human performance, its representation in aviation, the importance of good health of the crew and the influence of high altitudes, which is unnatural for humans. Unfortunately we can not forget the impact of fatigue and attention, which also play an important role. A dangerous phenomenon can also be a fact that some airlines many times give priority to the economic situation before the safe conduct of flight and thus indirectly contributes to the possible occurrence of an accident. It is up to frightened how small an insignificant it is at the beginning when human error factor usually leads to disaster. At the end of my work I have analyzed and presented their findings on a questionnaire, which was developed on the basis of theoretical knowledge in the first part of my work. The research was attended by 100 respondents as well passengers and airport workers.

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